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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/560,313	12/09/2005	Toshiaki Shiba	004476.00043	4986
22907	7590	10/10/2007		
BANNER & WITCOFF, LTD. 1100 13th STREET, N.W. SUITE 1200 WASHINGTON, DC 20005-4051			EXAMINER ALEMU, EPHREM	
			ART UNIT 2821	PAPER NUMBER
			MAIL DATE 10/10/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/560,313

**Applicant(s)**

SHIBA ET AL.

**Examiner**

Ephrem Alemu

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,7-10 and 18-20 is/are rejected.
- 7) ☒ Claim(s) 3-6 and 11-17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 5/06, 12/05.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Objections*

1. Claims 1 and 8 are objected to because of the following informalities: In claim 1, lines 9-10, "the external electrode type florescent lamp" lack antecedent basis. In addition "florescent" spelling needs to be corrected to --fluorescent--.

In claim 8, lines 2 and 3, "the external electrode type fluorescent lamp" lack antecedent basis. The examiner suggests replacing "the external electrode type florescent lamp" with --the external electrode type dielectric barrier discharge lamp-- and/or corrects it appropriately in order to overcome lack of antecedent objection. Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Hiraoka et al. (US 6,788,008).

Re claim 1, Hiraoka discloses a HF power source device (1) for generating HF voltage with a prescribed frequency (i.e., 10KHz to 100KHz); and an external electrode type dielectric barrier discharge lamp (2) using rare gas as a discharge medium, which is supplied with the HF voltage from the HF power source device (Figs. 1, 2), wherein the external electrode type florescent lamp having a gas pressure of equal to or higher than 120 torr (i.e., 19.3 kPa) and the frequency of the HF voltage is in the range from 24 kHz

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to 34 kHz. (i.e., the range 24 kHz – 34 kHz is within the disclosed range of 10 KHz-200 kHz of Hiraoka) (Figs. 1, 2; Col. 1, lines 38-42; Col. 7, lines 13-19).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2, 7, 10 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiraoka et al. (US 6,788,008) in view of Okamoto et al. (US 6,646,391).

Re claim 2, Hiraoka does not disclose a circuit for generating a drive signal with a Okamoto first frequency selected from 24 kHz to 34 kHz range and a drive signal with a second frequency selected from 20 kHz to 24 kHz range, each of which is modulated in pulse width by the output signal of the light control signal generating circuit; a light control ratio judge circuit to which the output of the light control signal generating circuit is supplied; a drive signal selection switch which selectively provides the drive signal of the first frequency or the drive signal of the second frequency by the output signal of the light control ratio judge circuit; a switching element driven by the drive signal of the first or the second frequency selected by the drive signal selection switch; wherein the drive signal selecting switch selects the drive signal of the first frequency when the light control ratio judged by the light control ratio judge circuit is equal to or higher than a prescribed value and selects the drive signal of the second frequency when the light

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control ratio is equal to or lower than a prescribed value, supplying the selected drive signal to the switching element.

In the same field of endeavor, Okamoto discloses the structure and teaches how to set the control frequency in a low state (i.e., selects the drive signal of the second frequency (i.e., 35.4) when the light control ratio is equal to or lower than a prescribed value); and setting the control frequency in the high state (i.e., selects the drive signal of the first frequency (i.e., 52.1 KHz) when the light control ratio judged by the light control ratio judge circuit is equal to or higher than a prescribed value) for the purpose of preventing the reduction of the uniformity of emission at a small emission amount (Figs. 2, 7, 8; Col. 3, line 61- Col. 4, line 37; Col. 8, line 45- Col. 9, line 21). Furthermore, Okamoto teaches by selecting the values of the capacitor and the resistor of the oscillator the low frequency and the high frequency can be selected separately (Col. 8, lines 45-55;).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Hiraoka's HF power source device with Okamoto's to set the control frequency in a low and high state for the purpose of preventing the reduction of the uniformity of emission at a small emission amount as taught by Okamoto. Furthermore, selecting the high (first) frequency from 24 kHz to 34 kHz range and selecting the low (second) frequency from 20 kHz to 24 kHz range would have been obvious based on the selected values of the capacitor and the resistor of the oscillator as taught by Okamoto.

Re claim 7, Hiraoka further discloses the rare gas added in the lamp is xenon. Therefore, enclosing rare gas containing xenon, neon and argon, in the external electrode

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dielectric barrier discharge lamp without containing mercury would have been obvious since mercury is known to cause harm to the environment.

Re claim 10, claim 10 is rejected for the same reason given above for claim 2.

Re claims 18-20, claims 18-20 are rejected for the same reason given above in claim 2. Furthermore, Okamoto's teaching optimum condition with respect to the uniformity of emission would have been met by setting the control frequency in a low and high state. Thus reduction of uniformity of emission (i.e., flickering) is also prevented. (see Okamoto, Col. 8, line 33- Col. 10, line 46).

6. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiraoka et al. (US 6,788,008) in view of Okamoto et al. (US 6,646,391) further in view of Yano (US 2004/0004441).

Re claims 8 and 9, Hiraoka and Okamoto does not disclose the lamp having a structure as claimed in claims 8 and 9.

In the same field of endeavor, Yano discloses an external electrode type fluorescent lamp having a structure as claimed in claims 8 and 9.

Therefore, providing external electrode type fluorescent as taught by Yano in place of Hiraoka would have been an obvious design choice.

***Allowable Subject Matter***

7. Claims 3-6 and 11-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Okamoto et al. (US 6,356,033); also teaches similar inventive subject matter.

***Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ephrem Alemu whose telephone number is (571) 272-1818. The examiner can normally be reached on M-F 9:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas W Owens can be reached on (571) 272-1662. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

EA  
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 10/1/07

DOUGLAS W. OWENS  
SUPERVISORY PATENT EXAMINER